

VOLTAGE CONTROLLED OSCILLATOR WITH SELECTABLE FREQUENCY
RANGES

ABSTRACT OF THE DISCLOSURE

5 A VCO is configured using a ring oscillator with voltage controlled
feedforward inverting stages coupled around the inverting stages making up the basic
ring oscillator to enable the frequency of the ring oscillator to be voltage controlled.
A latch and multiplexer is used to select between two or more outputs within the ring
oscillator to change the basic frequency range of the VCO glitch free. To achieve a
wide range VCO, additional stages are added to the basic ring oscillator. When the
10 number of stages is an odd number greater than seven, then the voltage controlled
feedforward inverting stages feedback to the outputs of the first and second inverting
stages of the ring oscillator. Two additional multiplexers are added to select which
feedforward inverting stage is coupled to the first and second inverting stage. This
allows a wide range interleaved VCO that switches between frequency ranges glitch
15 free.